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| 10/823,098 | 04/13/2004 | Kowang Liu | HT03-026 | 4539 |
| 7590 STEPHEN B. ACKERMAN 28 DAVIS AVENUE POUGHKEEPSIE, NY 12603 | | | | |
| EXAMINER | | | | |
| CIRIC, LJILJANA V | | | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/823,098

Applicant(s)

LIU ET AL.

Examiner

Ljiljana (Lil) V. Ciric

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 June 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 25-29 is/are pending in the application.
- 4a) Of the above claim(s) none is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 25-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

Response to Amendment

1. This Office action is in response to the reply filed on June 9, 2008.
2. Claims 1 through 6 and 25 through 29 remain in the application, all as amended, either directly or indirectly.

Response to Arguments

3. Applicant's arguments filed on June 9, 2008 have been fully considered but they are generally not persuasive.

First of all, with regard to applicant's statement that "examiner's statement that there is 'no antecedent basis in the specification for the microstructure as recited in the claims' is not understood", and the related commentary presented by applicant, the examiner respectfully notes that the aforementioned statement made by the examiner is based on a standard form paragraph used to ensure substantial correspondence between the language and terminology appearing in the claims and that appearing in the specification as required by 37 CFR 1.121(e) of the MPEP. As previously noted and as reiterated below, the examiner has failed to find any terminology in the specification which corresponds to the term "micro-structure" as used in the preambles of base claims 1 and 25, making the aforementioned objection to the specification proper.

Applicant continues to argue that the Jensen et al. patent/invention is inoperable at least in part. The examiner hereby reiterates that, in order for this argument to be persuasive, objective evidence must be factually supported by an appropriate affidavit or declaration to be of probative value. See *In re Lindner*, 457 F.2d 506, 508, 173 USPQ 356, 358 (CCPA 1972); *Ex parte George*, 21 USPQ2d 1058 (Bd. Pat. App. & Inter. 1991). The arguments of counsel cannot take the place of evidence in the record with regard to this matter. *In re Schulze*, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965). Examples of

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attorney statements which are not evidence and which must be supported by an appropriate affidavit or declaration include statements regarding unexpected results, commercial success, solution of a long-felt need, **inoperability of the prior art**, invention before the date of the reference, and allegations that the author(s) of the prior art derived the disclosed subject matter from the applicant. Furthermore, since every patent is presumed valid (35 U.S.C. 282), and since that presumption includes the presumption of operability (*Metropolitan Eng. Co. v. Coe*, 78 F.2d 199, 25 USPQ 216 (D.C.Cir. 1935)), examiners should not express any opinion on the operability of a patent. Affidavits or declarations attacking the operability of a patent cited as a reference must rebut the presumption of operability by a preponderance of the evidence. *In re Sasse*, 629 F.2d 675, 207 USPQ 107 (CCPA 1980).

Applicant has failed to provide any appropriate affidavit or declaration in response to the examiner's previous indication of the need for the same. Instead, applicant has mentioned three abstracts in the remarks which purportedly support the arguments provided by counsel but has failed to provide copies of these or to even properly cite these on an IDS for consideration. The listed abstracts have NOT been considered and fail to meet the standard of persuasiveness stated above.

In response to applicant's argument that the *Jensen et al.* reference fails to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., there being a thermal short circuit to convey heat directly to the substrate; there being a substructure that performs a similar function to that of a thermal short circuit; a thin film being a good electrical insulator and having a thermal conductivity in the range 100 to 400 W/m.K.) are not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Applicant further argues regarding thin film layers are similarly unpersuasive, especially since base claims 1 and 25 fail to recite a thin film of any sort. Similarly, dependent claims 2, 3, 5, 6, 26, 27, and 29 also fail to recite any type of thin film.

Furthermore, applicant is respectfully reminded that during patent examination, the pending claims must be interpreted as broadly as their terms reasonably allow. In re American Academy of Science Tech Center, 367 F.3d 1359, 1369, 70 USPQ2d 1827, 1834 (Fed. Cir. 2004). Applicant has the opportunity to amend the claims during prosecution, and broad interpretation by the examiner reduces the possibility that the claim, once issued, will be interpreted more broadly than is justified.

Applicant's arguments thus fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

Applicant's arguments also do not comply with 37 CFR 1.111(c) because they do not clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. Further, they do not show how the amendments avoid such references or objections.

Specification

4. Receipt and entry of the amended abstract is hereby acknowledged.
5. The amended abstract of the disclosure is objected to because it refers to the purported merits of the inventive method and apparatus (i.e., "efficient transfer of heat from the coil to the substrate is facilitated") and also because it uses terminology not consistent with the corresponding terminology used in the disclosure and the claims (i.e., "a heat diffuser"). Correction is required. See MPEP § 608.01(b).
6. The specification is still objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: there appears to be no antecedent basis in the specification for the micro-structure as recited in the claims. In other words, the term "micro-structure" appears in the claims but fails to appear anywhere in the specification, thus at best resulting in inconsistencies between the terminology used for certain elements in the claims and the terminology used for the same in the specification. See also 37 CFR 1.121(c) which

requires substantial correspondence between the language of the claims and the language of the specification.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 3, 4, 25, 27, and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Jensen et al.

Jensen et al. (especially Figure 5) discloses a method of and a corresponding apparatus for dissipating heat generated by a coil 536 located within a micro-structure that originates at a substrate or underlying structure comprising layers 512/518, 508/514, 510, and 506 and extends upwards therefrom essentially as claimed, including, for example: providing a thermally conductive pedestal 522 or 524 that extends upwards from the multi-layered substrate or underlying structure comprising layers 512/518, 508/514, 510, and 506; and, providing a dielectric layer 532 constructed of a material which is thermally conductive material (i.e., a silicon alloy) that thermally connects the pedestal 522 or 524 to the coil 536. Furthermore, Jensen et al. discloses that the layer of thermally conductive material or dielectric layer 532 has a thickness between 1 and 2.5 microns (i.e., is preferably between 1 and 1.5 microns thick). See column 6, lines 51-67 and column 7, lines 1-6.

The reference thus reads on the claims.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 2, 5, 6, 26, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jensen et al.

As disclosed in greater detail above, Jensen et al. discloses a heat dissipation method and a corresponding apparatus for dissipating heat generated by a coil 536 located within a micro-structure that is on substrate or underlying structure comprising layers 512/518, 508/514, 510, and 506 essentially as claimed, as described in greater detail above.

With regard to claims 2 and 26, while Jensen et al. does not, for example, disclose that the layer of thermally conductive material has a thermal conductivity which is specifically between 100 and 400 W/mK, Jensen et al. does disclose that the thermal conductivity of the thermally conductive dielectric layer 532 should be high, and preferably, for example, at or above 65 W/mK at 20 Celsius [see column 6, lines 61-64], which significantly overlaps the range cited in the claims of the instant application. Jensen et al. also cites several materials which would meet the claimed thermal conductivity range criteria [see column 6, lines 64-67; column 7, lines 1-6]. It would therefore have been obvious to one skilled in the art at the time of invention to select a highly thermally conductive material having a thermal conductivity in the range recited in claims 2 and 26 of the instant application in order to ensure that the heat generated by the coil 536 is dissipated away from the coil as quickly as possible in order to avoid thermal damage to the apparatus.

Similarly, with regard to claims 5, 6, and 29, while Jensen et al. does disclose a microstructure which inherently has features sized within the order of magnitude recited by the claims of the instant application, Jensen et al. does not specifically disclose the pedestal cross-sectional areas and coil heat generating rates recited in the claims of the instant application, absent a showing of unexpected results resulting from having the pedestal cross-sectional areas and the coil heat generating rates within the recited ranges, it would have been obvious to one skilled in the art at the time of invention to modify the

heat dissipation method and corresponding heat extractor structure of Jensen et al. by designing the pedestals 522 or 524 to have a cross-sectional area within the range recited within the range recited in claims 5 and 29 of the instant application and to have coil 536 generate heat at the rate recited in claim 6 of the instant application in order to ensure an optimal or desired heat dissipation rate away from coil 536 and minimize the likelihood of any thermal damage to the apparatus.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ljiljana (Lil) V. Ciric whose telephone number is 571-272-4909. The examiner works a flexible schedule, but can normally be reached weekdays between 10:30 a.m. and 6:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl J. Tyler can be reached on 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained

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from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ljiljana (Lil) V. Ciric/

Primary Examiner, Art Unit 3744